

## REMARKS

By this amendment, new claims 21 and 22 are added. Claims 8, 11 and 12 have already been allowed by the Examiner. Currently, claims 1-4, 6-8, and 11-22 are pending and currently active in the application. Applicant respectfully submits that the above amendments are fully supported by the specification.

Entry of this Amendment is respectfully requested because it places the present application in condition for allowance, or in the alternative, better form for appeal. In view of the above Amendments and the following Remarks, Applicant respectfully requests reconsideration and withdrawal of the objections and rejections for the reasons discussed below.

### **Claims 8, 11 and 12 are allowable**

Applicant appreciates the indication that claims 8 and 11 - 12 are allowed. While Applicant agrees these claims are patentable over the cited references, Applicant does not agree that patentability resides in each feature exactly as expressed in the claims, nor that each feature is required for patentability of each claim.

### **Rejection of claims 1-4, 6, 7, and 14 under 35 U.S.C. 103(a) as being unpatentable over Jeong et al. (U.S. Patent No. 6,271,816) in view of Ozawa (U.S. Patent No. 6,670,953)**

In the Office Action, at page 2, claims 1-4, 6, 7, and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong et al. (U.S. Patent No. 6,271,816) (hereinafter, "Jeong") in view of Ozawa (U.S. Patent No. 6,670,953). "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or

suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Neither Jeong nor Ozawa, whether taken alone or in combination, teaches or suggests all of the elements recited in claims 1-4, 6, 7, and 14 of the present application; therefore, Applicant respectfully traverses this rejection for at least the following reasons.

The Office Action asserts that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the thin film transistors disposed between the data line sharing switch and the data driver as taught by Ozawa in the system of Jeong in order to simplify the design of the display circuit.” However, this proposed modification is based on hindsight and would change a principle of operation of the system of Jeong.

Modifying the circuitry of Jeong with the control configuration described in Ozawa would change the principle of operation of Jeong, as Jeong already has a specific configuration for the data lines. For example, as illustrated in Fig. 1b of Jeong, the drivers first drive the even column drivers 104 at a relatively positive voltage and drive the odd column drivers 105 at a relatively negative voltage. Col. 5, lines 25-30. Next, transistors 112 are turned on to electrically short the column drivers 104 and 105. Col. 5, lines 30-38. Then, the drivers in Jeong drive the even column drivers 104 at a relatively negative voltage and drive the odd column drivers 105 at a relatively positive voltage. Col. 5, lines 39-45. The transistors 112 are then turned on again to electrically short the column drivers 104 and 105. Col. 5, lines 45-53.

There is no basis for adding the testing switches of Ozawa to the circuit in Jeong, as the signals applied to the data lines in Jeong already alternate between positive and negative relative values and the transistors are not used for inspecting defects of the

substrate. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims *prima facie* obvious." MPEP §2143.01 (*citing In re Ratti*, 270 F.2d 810). Therefore, for at least this reason, the combination of Jeong and Ozawa is improper and does not establish a *prima facie* case of obviousness of claims 1-4, 6, 7 and 14.

The TFTs (T7a, T8a, T7b, T8b, ...) disclosed by Ozawa are used to detect defects in the lines and are connected to corresponding test terminals provided on the substrate as opposed to the TFTs disclosed in Jeong, which function as switches which, when on, electrically short the data lines together so that the voltages on the data lines converge to an average of the voltages on the data lines. Further, in Ozawa, the TFTs forming the transistor sequences are switched on/off in accordance with the signal input from the test terminals. Therefore, if Ozawa is combined with Jeong, the resultant device does not disclose the invention claimed in claim 1 of this patent application, which cite, *inter alia*, a sharing signal generator for outputting a sharing signal control signal....

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP §2143.01 (*citing In re Mills*, 916 F.2d 680). The prior art provides no motivation for this combination. Rather, the only teaching for this is found in applicant's invention. Clearly, this is improper hindsight.

The Office Action fails to provide any objective motivation in the prior art for combining Ozawa and Jeong. Instead, the Office Action simply asserts that "Jeong and

Ozawa both disclose an active matrix display with TFT switching unit, gate driver, data driver, and data line sharing switch.” As discussed above, the TFTs in Ozawa function very differently than those in Jeong. In light of at least the above arguments, the combination is improper and fails to establish a *prima facie* case of obviousness of independent claims 1. Further, Johnson fails to remedy any of these deficiencies. Accordingly, it is respectfully requested that the rejection of independent claim 1 be withdrawn.

Claims 2-4, 6, 7 and 14 depend from independent claim 1 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 2-4, 6, 7 and 14 be withdrawn.

**Rejection of claims 15-18 and 20 under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (U.S. Patent No. 5,907,314) in view of Wright (EP 0 315 365)**

In the Office Action, at page 4, claims 15-18 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (U.S. Patent No. 5,907,314) (hereinafter, “Negishi”) in view of Wright (U.S. Patent No. EP 0 315 365. Neither Negishi nor Wright, whether taken alone or in combination, teaches or suggests all of the elements recited in claims 15-18 and 20 of the present application; therefore, Applicant respectfully traverses this rejection for at least the following reasons.

Claim 15 recites, among other things, “ ... a sharing signal generator for outputting a first sharing control signal for turning on the first switching devices to connect the adjacent first data lines and a second sharing control signal for turning on the second switching devices to connect the adjacent second data lines, wherein the

first thin film transistors are disposed between the first data line sharing switch and the first data driver, and the second thin film transistors are disposed between the second data line sharing switch and the second data driver.

Neither Negishi nor Wright, either alone or in combination, discloses these elements of claim 15. As explained by the Examiner in the Office Action and illustrated in Figure 1, Wright discloses a first group of switching devices 17-19 that connects column electrodes 2, 3, 4 between adjacent sub-matrices. However, the second group of switching devices 20-22 also connects column electrodes 2, 3, 4 between adjacent sub-matrices. Thus, the first group of switching devices 17-19 and the second group of switching devices 20-22 connect to the same column electrodes and do not connect “the adjacent first data lines” and “the adjacent second data lines”, respectively, as recited in claim 15 of the present application.

Further, there is no distinction regarding which electrodes, or lines, to which the switching devices are connected, e.g., first data lines and second data lines. Therefore, Wright does not teach a first data line sharing switch formed between the first data lines and a second data line sharing switch formed between the second data lines. Further, Negishi, Johnson, and the other cited prior art do not correct this deficiency. Accordingly, it is respectfully requested that the rejection of independent claim 15 be withdrawn.

Claims 16-18 and 20 depend from independent claim 15 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 16-18 and 20 be withdrawn.

**Rejection of claims 19 under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (U.S. Patent No. 5,907,314) in view of Wright (EP 0 315 365) and further in view of Johnson et al. (U.S. Patent No. 6,304,254).**

In the Office Action, at page 6, claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (U.S. Patent No. 5,907,314) (hereinafter, "Negishi") in view of Wright (U.S. Patent No. EP 0 315 365) and further in view of Johnson et al. (U.S. Patent No. 6,304,254) (hereinafter, "Johnson"). Neither Negishi, Wright, nor Johnson, taken alone or in combination, teaches or suggests all of the elements recited in claim 19 of the present application since claim 19 depends from independent claim 15 and is patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejection of claim 19 be withdrawn.

**New Claims 21 and 22**

Claims 21 and 22 are newly added and recite patentably distinguishing features of the present invention. Claim 21, for example, recites, "... wherein the adjacent data lines are connected after the voltage applied to a previous gate line is changed to a gate-off voltage, and the adjacent data lines are disconnected in a predetermined time after the gate-on voltage is applied to the gate line." Since none of the prior art of record teaches or suggests at least this limitation, Applicant respectfully requests that new claim 21 be allowed.

Claim 22, for example, recites: "A liquid crystal display, comprising ... a plurality of thin film transistors consisting of first and second thin film transistors ... a sharing signal generator for outputting a first sharing control signal across a first sharing control signal line for turning on the first switching devices to connect the adjacent first data


lines and outputting a second sharing control signal across a second sharing control signal line for turning on the second switching devices to connect the adjacent second data lines, wherein the first thin film transistors are disposed between the first data line sharing switch and the first data driver, and the second thin film transistors are disposed between the second data line sharing switch and the second data driver.” Since none of the prior art of record teaches or suggests at least these limitations, Applicant respectfully requests that new claim 22 be allowed.

## CONCLUSION

Applicant believes that a full and complete response has been made to the Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution. Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,



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